

### **DETAILED ACTION**

Since U.S. Patent Application Publication No. 2002/0088584 to Merkley et al. was not included in the previous rejections/Office Actions, the Finality of the previous Office Action is hereby withdrawn, and instant action is hereby made Non-Final.

### ***Response to Amendment***

This Office Action is in reply to amendment filed October 9, 2009. After entry of this amendment, claims 1-19 and 28 are currently pending in this application.

### ***Claim Objections***

**Claim 3** is objected to because of the following informalities: Applicant has used double bracketing to delete a term in the third line of claim 3 (i.e. annulled); however, double bracketing cannot be used to delete more than five characters. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 3** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in

the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 3, partly, recites that the natural straw being at least partly "removed"; however, specification lacks support for this claimed language. Applicants have replaced "annulled" with "removed"; however, no where in the specification any indication or explanation is found that would reflect annulled and removed have the same meaning.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5, 8, 10-11, 14 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0088584 to Merkley et al.

Regarding claims 1 and 28, Merkley et al. disclose a composite material comprising a binder and cellulose fiber ([0032]; [0055]) in which the cellulose fibers (i.e. straw) are reduced to a fibrous mass by the means of rupturing the bonds within the structures of lignocellulosic materials by chemical, mechanical, thermal, biological or a combination thereof treatments. It should be noted that the disclosure of "rupturing" the cellulose fiber by the different means stated above is taken to read on the limitation of

the straw or cellulose fibers being at least partly disintegrated absence evidence to the contrary and specially in view of the fact that the many different treatment disclosed by the reference to rupture the structure of the straw or cellulose binders is taken to clearly meet the definition of disintegration as that recited in applicants' specification, pages 5-6. Furthermore, Merkley et al. disclose the cellulose fibers are individualized by removing a majority of lignin binding the fibers together, thus, suggesting disintegration. In addition, the reference discloses obtaining cellulose pulps from said fibers.

With reference to the recitation of "A deadening material for production of deadening pads", it is to be noted that this is a preamble recitation; while the reference discloses the components recited by instant claims, the composition of the reference is seen to read on the intended use of the instant application which is recited in the preamble of the claim. MPEP 2111.02 states:

During examination, statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. If so, the recitation serves to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Considering the fact that Merkley et al. disclose a composition comprising the same components as those recited in instant claim 1, the fact that the composition is used to make a deadening pad in a deadening material is a considered a capability of the claimed composition and thus, of the disclosed composition by Merkley et al.

Furthermore, the limitation recited in claim 28 "wherein the deadening pad is useable for vehicles selected from the group consisting of automobiles, rail cars, air

planes, and ships." is considered an intended use; thus, it does not further limit the composition claims.

Regarding claim 2, Merkely et al. teach a material in which the structure of cellulose fibers have been ruptured by chemical, mechanical, thermal, or biological treatment, or a combination of said treatments and has been used along with a binder in a material. Furthermore, since Merkley et al. teach that the cellulose fibers are individualized by removing a majority of lignin binding the fibers together ([0056]); these disclosures are taken to suggest disintegration absence evidence to the contrary. Therefore, the fibers are considered to be neutralized since they have been disintegrated.

The disclosure of straw in Merkley et al. is taken to mean natural straw, which, then, the reference discloses that said straw is being ruptured by different means; it is apparent and known that natural straw comprises natural fiber. Since the reference discloses the rupturing the structure of straw, the characteristic of neutralization as a result of rupturing the straw or disintegrating it is expected to follow from the ruptured straw absence specific evidence proving the contrary.

Regarding claim 3, considering the fact that instant claim 3 recites that the "disintegration of the natural straw being at least partly removed" or "annulled" (a 112-second paragraph is standing on "removed" amendment of claim 3 as seen above), it is taken that the reference reads on said limitation of instant claim specially because of the

fact that Merkley et al. teach that the straw or fibers are treated so that lignin which holds the cellulose together (i.e. thus forming the straw stalks) is broken and dissolved (i.e. removed) ([0055]-[0056]). Further, the reference talks about individualizing the fibers.

Regarding claim 4, the fact that Merkley et al. disclose that the straw is obtained from natural sources such as softwood, hardwood, etc. ([0055]) is a clear indication that the straw is from a natural stalk structure.

Regarding claim 5, Merkley et al. disclose individualizing cellulose fibers by removing a majority of the lignin binding the cellulose fibers together ([0035]). Therefore, it is taken that the fibers are at least partly neutralized since the claim clearly recites that the neutralization is obtained by loosening the lignin.

Regarding claim 8, considering the fact that Merkley et al. disclose that the straw or cellulose fibers may undergo one or more treatments one which includes mechanical treatment, it is taken that they would end up having a shortened length as compared to their natural length absence evidence proving the contrary.

It is to be noted that with reference to shortening the length before any disintegration, it is to be noted that since Merkley et al. disclose that any of the treatments recited in paragraph [0055] can be utilized by stating that "This task can be accomplished chemically, mechanically, thermally, biologically, or by combination of

these treatments", it would make it obvious that only mechanical treatment may be used and not other ones. Thus, no chemical or thermal has been applied which can cause disintegration. Therefore, the reference reads on the limitation of instant claim 8.

Regarding claim 10, Merkley et al. teach loading cellulose fibers (i.e. impregnating or treating cellulose fiber) with certain substances ([0035]).

Regarding claim 11, Merkley et al. clearly disclose that one beneficial attributes to the loaded fiber is to provide better fire resistance ([0047]).

Regarding claim 14, it is to be noted that the filler (i.e. raw material such as straw) disclosed by Merkley et al. is used in a composition which is combined with a binder and formed/molded into a material; therefore, it is the examiner's position and said filler is compressible absence clear and specific evidence showing the contrary.

Regarding claim 19, it should be noted that while Merkley et al. clearly disclose mechanical treatment, it is apparent that said treatment includes cutting or shredding the cellulose fibers absence clear evidence showing that the mechanical treatment of Merkley et al. cannot refer to shredding the fibers. Thus, the limitation of claim 19 is seen to have been met.

**Claims 6 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claim 1 above, and further in view of U.S. Patent No. 1,726,078 to Leyst.

Merkley et al. clearly teaches rupturing the fibers using different techniques including "thermal" treatments ([0055]). Thus, it would have been obvious to one of ordinary skill in the art that such thermal treatment is obtained by boiling in a high temperature, such as 95-100°C, after the straw has been cut into suitable sizes and certain compounds such as strong alkali (i.e. pulpy composition has been formed) has been added into (Leyst; page 1, lines 1-20 and 69-75).

Furthermore, the fact that the combination of references does not disclose a specific process for thermal treatment and boiling is interpreted as having done such process in any and all methods known such as for example the one taught by Leyst absence clear evidence showing the contrary.

**Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claim 1 above, and further in view of U.S. Patent No. 2,738,287 to Greider.

Merkley et al. disclose the use of a cementitious binder in a composition comprising binder and straw (i.e. cellulose fibers) which have been individualized and have been treated under chemical, mechanical, thermal, biological, etc. or a combination thereof treatment.

Although Merkley et al. do not expressly and/or literally disclose the use of bitumen as a cementitious binder, the use of such would have been obvious to a person of ordinary skill in the art motivated by the fact that that bitumen is a known cementitious binder as that shown/taught by Greider (column 5, lines 15-25). It is to be noted that Greider discloses a bituminous composition which forms a cementitious binder.

Thus, while Merkley et al. clearly disclose the use of cementitious binder, it would have been within the scope of a skilled artisan to have utilized bitumen for that purpose as detailed above.

**Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claims 1 and 8 above, and further in view of U.S. Patent No. 3,281,902 to Kalwaites.

Merkley et al. disclose a composition comprising binder and straw/cellulose fibers which in which the straw may be treated through different means such as for example, mechanical which would make it obvious that the straw would end up breaking apart and having a shorter length than its natural one as detailed out above.

Even though Markley et al. may not expressly and/or literally disclose the length of the straw, it would have been obvious that the natural straw or cellulose fiber has a length of less than about 3/4 inch and down to about 3/16 of an inch or less as that shown by Kalwaites (column 3, lines 29-36). It should be noted that Kalwaites makes it clear that this is the length of natural cellulosic fibers. Thus, one of ordinary skill in the art would have expected of the natural cellulose fiber to have a length within that range



motivated by the fact that not only Kalwaites makes it clear that the range of natural cellulosic fibers is of less than about 3/4 inch and down to about 3/16 of an inch or less, but also because both Kalwaites and Merkley et al. consider wood fibers as natural cellulosic fiber; thus, they talk about the same type of fibers.

**Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claim 1 above, and further in view of U.S. Patent No. 5,690,874 to Bell and U.S. Patent No. 6,031,012 to Nakanishi et al.

Merkley et al. clearly disclose that one beneficial attributes to the loaded fiber is to provide better fire resistance; thus, it would have been obvious to have load/treated the cellulose fibers of Merkley et al. with a fire resistance or flame retardant composition/compound to impart such effect to the fibers. With respect to the specific type of flame retardant, the claimed material is known as shown by Nakanishi et al in column 19, line 50-60, thus one skilled in the art would have appreciated the concept of using known flame retardants specially in view of the fact that Merkley et al. clearly disclose the use of "phosphate" compound as well ([0047]).

It should be noted that Merkley et al. disclose loading cellulose fibers with any suitable inorganic or organic substance or compounds or combination thereof depending on the *particular attributes needed for the specific application* of the fiber cement material.

**Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkely et al., as applied to claim 1 above as evidenced by U.S. Patent No. 3,754,930 to Toei et al.

Merkely et al. disclose a composition comprising binder and straw/cellulose fibers which have been disintegrated as detailed out above.

Merkely et al. do not expressly disclose the density of the raw material of straw that has been used in said reference. However, it would have been obvious to a person of ordinary skill in the art to have a density of less than 2000 kg/cbm for the filler (i.e. raw material such as straw) considering the fact that wheat is known to be a natural or raw straw and has a density of  $780 \text{ kg/m}^3$  ( $78 \times 10^{-5} \text{ kg/cbm}$ ) as that evidenced by Toei et al. (column 4, lines 35-40), and in view of the fact that Merkely et al. make it clear that their cellulosic fiber may come not only from wood by "*any other forms of lignocellulosis materials*" in paragraph ([0055] of Merkely et al. Therefore, such a straw or cellulosic fibers disclosed by Merkely et al. would broadly read on any raw straw such as wheat.

**Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al. as applied to claim 1 above, and further in view of *Cellulose from Cereal Straw* by Sidney Wells. (the document had been attached to the previous Office action, and thus has not been provided with this instant action).

Merkley et al. disclose a composition comprising binder and straw/cellulose fibers which have been disintegrated as detailed out above.

Although Merkley et al. may not expressly disclose the proportions of raw fiber, lignin, pentosan and cellulose in the straw; Sidney Wells in the article of *Cellulose from Cereal Straw* disclose that straw comprises 3.7% pentosan, 1.6% cellulose, and 13.8% lignin in the straw of said article which is preferably considered to have come from wheat (page 276). Sidney Wells, also, discloses that a yield of 55% is obtained in the fiber liberation/bleaching process (page 27); thus, it is considered to be within reasonable expectation that a fiber content of 55% exists within the straw absence clear and specific evidence to the contrary.

The combination is motivated by the fact that Merkley et al. disclose that the cellulose pulps can be made of softwood, hardwood, agricultural raw materials, recycled waste paper, or *any other forms of lignocellulosis materials* ([0055]), and thus, since Wells disclose that the straw may come from wheat, it would have been obvious to a skilled artisan that the straw disclosed by Merkley et al. may be wheat having the proportions of constituents as disclosed by Wells absence clear evidence to the contrary.

**Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claim 1 above, and further in view of Greider. In view of U.S. Patent No.1,970,426 to Levin.

Merkley et al. disclose a composition comprising binder and straw/cellulose fibers which have been disintegrated as detailed out above, and the combination of Merkley et

al. in view of Greider makes it obvious to have utilized bitumen as the binder in Merkley et al. as detailed out above.

Although said combination may not expressly disclose the bitumen is a heat fusible substance, it would have been apparent and known to a skilled artisan that bitumen is a heat fusible substance as that made evidenced by Levin (page 1, lines 1-5).

**Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Merkley et al., as applied to claim 1 above, in view of WO 99/67072 to Svedberg.

Merkley et al. disclose a composition comprising binder and straw/cellulose fibers which have been disintegrated as detailed out above. Although Merkley et al. do not expressly disclose the use of any magnetizable material in their composition, the use of magnetizable materials in cementitious material with the aim of reinforcing said material have been known, and thus made obvious, as that evidenced/shown by Svedberg (Abstract).

### ***Response to Arguments***

Applicants' arguments with respect to claims 1-19 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Pegah Parvini/  
Examiner, Art Unit 1793

/J.A. LORENZO/  
Supervisory Patent Examiner, Art  
Unit 1793